

REMARKS

I. Introduction

The Office Action of November 26, 2008 has been reviewed and the Examiner's comments carefully considered. Claims 13-24 are currently pending in this application, and claims 13 and 22 are in independent form.

II. 35 U.S.C. §102 Rejection

Claims 13-15 and 18-24 stand rejected under 35 U.S.C. §102(e) as being anticipated by United States Patent No. 6,885,522 to Kira et al. (hereinafter "the Kira patent"). In view of the following remarks, the Applicants respectfully request reconsideration of this rejection.

As defined by independent claim 13, the present invention is directed to a carrier for supporting and engaging semiconductor products during separating of the products using laser light. The carrier includes a plate provided with a pattern of holes arranged in a flat carrying side of the plate. The plate is manufactured from a material at least substantially not absorbing the laser light.

As defined by independent claim 22, the present invention is directed to a method for supporting and engaging semiconductor products during separating of the products using laser light. The method includes the processing steps of: A) placing an assembly of semiconductor products for separating onto a flat plate provided with a pattern of holes; B) applying an underpressure to the holes of the pattern of holes such that the assembly of semiconductor products is drawn against the plate; C) directing at least one laser beam onto the assembly and cutting through the assembly where this is desired by means of mutual displacement of the laser source and the flat plate such that each severed semiconductor product is still connected to at least one hole in the flat plate; and D) taking the separated products from the plate.

The Kira patent is directed to a head assembly having a mounting surface with an integrated circuit (IC) chip (80D) mounted thereon and a method of producing the IC chip (80D). While the Kira patent discloses various methods of producing IC chips, the Examiner appears to

be relying on the method illustrated in FIGS. 26A-26E. This method includes the steps of: adhering a film (171) on a surface of a wafer structure (160) opposite to the surface provided with bumps (84) as shown in FIGS. 26A and 26B. Then, as shown in FIG. 26C, the wafer structure (160) is placed on a dicing table (172) so that the bumps (84) face upwards. A dicing saw (173) which rotates at a high speed is used to dice the wafer (161) into a plurality of chips (162) in an array. Each of the diced chips (162) remain bonded on the film (171) in the array. Next, the diced wafer (161) is fixed on a film suction unit (290) which is provided in a CVD apparatus, and the film (171) is sucked by the operation of a pump (291) as shown in FIG. 26D. The film suction unit (290) has a support plate member (292) having a plurality of suction holes (292a) and cylindrical supports (292b). Finally, a CVD is carried out in the state shown in FIG. 26D. A gas passes through the dicing grooves (163) and reaches the spaces (293) such that a poly(p-xylylene) layer (110) is formed as shown in FIG. 26E.

Regarding independent claim 13, the Kira patent does not teach or suggest a carrier for supporting and engaging semiconductor products during separating of the products using laser light as required by the claim. The Examiner relies on column 12, lines 32-49 and FIGS. 11A-F of the Kira patent as teaching this feature. However, this portion of the Kira patent describes that laser beams (180,181) are used to heat and melt portions of a poly(p-xylylene) layer (110) of a wafer (161) prior to dicing the wafer (161) with a dicing saw (173). There is no teaching or suggestion of separating a semiconductor product using a laser light as required by independent claim 13. In addition, the Kira patent does not appear to teach or suggest that the carrier comprises a plate manufactured from a material at least substantially not absorbing laser light as required by independent claim 13. The Examiner relies on column 18, line 47 to column 19, line 15 and FIGS. 26A-26E of the Kira patent as teaching such a feature. However, this portion of the Kira patent discloses a method of producing an IC chip (80D) and does not mention the use of a laser light. Instead, this portion of the Kira patent discloses that a dicing saw (173) which rotates at a high speed is used to dice the wafer (161) into a plurality of chips (162) in an array (*see* column 18, lines 51-53 of the Kira patent).

Regarding independent claim 22, the Kira patent does not teach or suggest the step of directing at least one laser beam onto the assembly and *cutting* through the assembly. As discussed above, the only discussion of a laser in the Kira patent appears at column 12, lines 32-39. However, this portion of the Kira patent describes that laser beams (180,181) are used to heat and melt portions of a poly(p-xylylene) layer (110) of a wafer (161) prior to dicing the wafer (161) with a dicing saw (173). There is no teaching or suggestion in the Kira patent that a laser beam is used to cut through an assembly as required by independent claim 22.

In addition, the Kira patent discloses the use of a CVD apparatus that includes a support plate (292). This support plate (292) is tailored such that the chips (162) are supported in the middle thereof and a vacuum peels off a film (171). This allows the chips (162) to be at least partly CVD coated on their underside. The plate of the claimed invention is not configured to perform such functions.

For the foregoing reasons, the Applicants believe that the subject matter of independent claims 13 and 22 is not anticipated by the Kira patent. Reconsideration of the rejection of claims 13 and 22 is respectfully requested.

Claims 14, 15, 18-21, 23, and 24 depend from and add further limitations to independent claim 13, independent claim 22, or a subsequent dependent claim and are believed to be patentable for at least the reasons discussed hereinabove in connection with independent claims 13 and 22. Reconsideration of the rejection of claims 14, 15, 18-21, 23, and 24 is respectfully requested.

III. 35 U.S.C. §103 Rejection

Claims 16 and 17 stand rejected under 35 U.S.C. §103(a) for obviousness based upon the Kira patent. In view of the following remarks, the Applicants respectfully request reconsideration of this rejection.

Claims 16 and 17 depend from and add further limitations to independent claim 13 or a subsequent dependent claim and are believed to be patentable for at least the reasons discussed hereinabove in connection with independent claim 13. Reconsideration of the rejection of claims 16 and 17 is respectfully requested.

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IV. Conclusion

Based on the foregoing remarks, reconsideration of the rejections and allowance of pending claims 13-22 are respectfully requested. Should the Examiner have any questions, or wish to discuss the application in further detail, the Examiner is invited to contact the Applicants' undersigned representative by telephone at 412-471-8815.

Respectfully submitted,
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